

2) a catch basin inlet grate that rests in the basin opening and,

3) a catch basin filter in the form of a bag and,

b) an improvement wherein the top of the filter bag has a variable sized opening comprising a size smaller than the grate for encircling and coupling said filter bag to said grate.

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cont.

#### Remarks – General

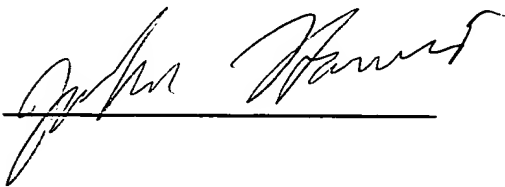
1. The claims of record have been rewritten and replaced with new claim 19.
2. Editorial corrections have been made in the specifications.
3. In regard to number 2 in the office action the correct patent number has been Entered as #5,372,714. The “References Cited” section has been deleted. The abstract and claims are each on a separate page.
4. In regard to numbers 3 & 4 of the office action, the contents have been considered.
5. In regard to number 5 of the office action, Claims 1 and 2 are dropped and cancelled.
6. In regard to number 6 of the office action, Claims 1 and 12 are dropped and cancelled.
7. In regard to number 7 of the office action, Claims 2-4 and 15-18 have been rewritten as claim 19 in accordance to the expressed recommendation of the office action as being allowable over prior art.
8. In regard to number 8 of the office action the content was considered and taken note of.
9. In regard to number 9 of the office action the additional prior art of record has been

studied but is submitted to be of less relevant than the relied upon references.

10. Request For Constructive Assistance.

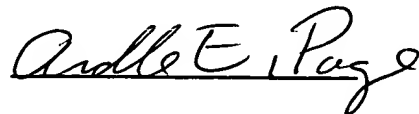
The undersigned have made a diligent effort to amend the claims of this application so that they define novel structure (a filter located below a catch basin grate with a variable sized top opening comprising an opening smaller than the grate) which is also submitted to render the claimed structure unobvious because it produces new and unexpected results ( the variable opening couples the filter to the grate and releases the filter from the grate). If, for any reason the claim of this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 707.07(j) or in making constructive suggestions pursuant to MPEP 706.03(d) in order that this application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Very Respectfully



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Patent Application

of

John F. Harris and Ardle E. Page

for

Catch Basin Filter

[References Cited]

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[U.S. Patent Documents:]

[5,372,714 Dec. 13, 1994 Logue Jr.]

[5,575,925 Nov. 19, 1996 Logue Jr.]

[5,849,198 Dec. 15, 1998 Sharpless]

[6,149,803 Nov. 21 2000 DiLoreto, Jr. et al.]

[Description of Prior Art]

Background of the Invention:

Field of the Invention

This invention relates to a filter for use in a storm sewer catch basin equipped with a top grate. The ground water flows through the grate into the catch basin and into the sewer line. Before the ground water flows into the sewer line it needs to be filtered free of pollutants.

Description of the Prior Art

In the past this has been accomplished by placing a filter bag below the grate and inside the catch basin. In Patent # 5,575,925 and [# 5,575,925] #5,372,714 the filter bag is held [into ] in place by the weight of the grate against the lip of the basin opening. When the bag fills with the weight of filtered solids the bag tends to be pulled past the original

1 position of depth. When the bag is emptied the filter bag is further pulled down into  
2 the grate risking the spilling of solids into the basin and the contamination of the sewer  
3 line. The slipping of the filter sack into the basin is prevented by the insertion of [mettle]  
4 metal rods into flaps which extends away from the grate. This is an unnecessary expense in the  
5 manufacturing of the filter bag flaps, and materials, and labor.

6 Other filter bags which are below the grate and inside the catch basin require  
7 expensive support devices. In Patents # 6,149,803 and # 5,849,198, the catch basin filter  
8 requires complex framing and supports which are unnecessary and expensive to  
9 manufacture, ship, and install. Patent # 5,849,198 describes a filter attached to the grate by  
10 a mechanical means such as chains or rods attached to a frame supporting a filter cartridge.  
11 These devices are unnecessary and expensive to manufacture and ship, and labor intensive  
12 to install. For the above reasons there is a need for a catch basin filter that is easy to  
13 install, environmentally safe to empty, and inexpensive to manufacture.

14 Our invention is a removable filter for a storm sewer catch basin equipped  
15 with a removable top inlet grate. The filter is typically composed of a porous geo textile  
16 fabric. The typical embodiment of our filter consists of a filter bag attached to the grate  
17 and suspended inside of the catch basin. The invention is an attachment means of  
18 holding a filter in place on the grate both during filtration and during filter removal.  
19 This prevents unnecessary contamination of the catch basin during service.  
20 The attachment means holds the basin filter in position by [encircling the  
21 grate] a variable opening in the top of the filter bag that comprises an opening size  
22 smaller than the grate and thereby couples the filter bag and the inlet grate together.  
When  
the filter is removed, the filter bag and grate are both removed as one unit

1 from the catch basin. This prevents the filter from slipping free and dumping  
2 solids into the catch basin during both filtration and filter removal.

### Summary of the Invention

3 Other objects and features of the invention will become apparent as our  
4 description proceeds, especially when considered with the accompanying  
5 drawings illustrating the invention. We include one sheet and one embodiment.

### [Description of the Drawings]

#### Brief Description of the Drawing

7 FIG. 1 is a top view of our filter bag in a catch basin below a top grate with  
8 the top edge of the bag enwrapping the inlet grate; and FIG.2 is a sectional view  
9 taken along line II. – II. of FIG. 1.

#### Description of the Preferred Embodiment

11 The concrete catch basin 12 has an inlet grate 22 located at grade level. In ground  
12 side walls 14, and floor 16. Floor 16 and side walls 14, define chamber 20.  
13 Concrete storm sewer pipe 18 extends away from one of the side walls 14 above  
14 floor 16. Rectangular inlet grate 22 closes the catch basin inlet 34. Ground  
15 water flows through the grate 22 and into the catch basin chamber 20.

16 The catch basin filter includes a filter bag 26 inside the catch basin  
17 chamber 20, and also a top [edge] opening of the filter bag 24 which enwraps  
18 the grate 22. Said filter bag includes four tapered side walls which are joined  
19 together to form a filter top opening to receive waste water.

1 Filter bag 26 is preferably made from woven polypropylene fabric. The woven  
2 fabric permits water to flow freely through the filter bag 26 while retaining  
3 pollutants, including suspended solids, inside of the bag. The side walls form a  
4 bottom to retain the pollutants. When filled, the filter bag expands to full shape  
5 32. The filter bag 26 is held in place by enwrapping the grate 22 with a top edge  
6 of the filter bag 24. The filter bag top edge 24 includes grommets 30 and a draw  
7 cord 28.

10 When the filter is removed, the grate 22 is used as a ridged support to lift the  
11 filter bag 26 as one unit up, out and away from catch basin 12. The filter bag 26,  
12 when full, would normally require a mechanical means for removal from the  
13 catch basin. The additional weight of a typical grate 22 would be a minimal  
14 portion of the total removed units' weight.

15 When the filter bag is emptied, the grate 22 is removed from the filter bag  
16 top edge 24. The filter bag 26 can then be dumped or disposed of. When filter  
17 26 is reused, grate 22 is reinserted into filter bag 26. The filter bag top edge 24 is  
18 pulled around grate 22 using draw cord 28. The cord is pulled through grommets  
19 30. Grate 22 and filter bag 26 are together lowered back into catch basin.

20 While we have illustrated and described a preferred embodiment of our  
21 invention, we wish to not be thereby limited to this preferred embodiment but  
22 wish to include such changes and variations as fall within the scope of the  
23 following [claims] claim.

Claim

We claim

19. the combination comprising:

- a) a catch basin including,
  - 1) an inlet through which storm water and pollutants flow into a catch basin and,
  - 2) an outlet through which water flows out of the catch basin and,
  - 3) basin side walls and bottom and,
  - 4) a catch basin inlet grate and,
  - 5) a catch basin filter in the form of a bag and,
- b) the improvement wherein the top of the filter bag has a variable sized opening comprising a size smaller than the grate for encircling and coupling said filter bag to said grate.

1 Claim

[Claims 1 to 18 are deleted]

2 We claim:

3 a) a catch basin including,

4 1 ) an inlet through which storm water and pollutants flow into a catch

5 basin and,

6 2) a catch basin inlet grate that rests in the basin opening and,

7 3) a catch basin filter in the form of a bag and,

8 b)an improvement wherein the top of the filter bag has a variable sized

10 opening comprising a size smaller than the grate for encircling and

10 coupling said filter bag to said grate.





1        Abstract of the Disclosure                      [Abstract]

2                      A removable filter for in ground catch basins. The present invention  
3 includes a catch basin, a top grate, a filter and an attachment of the filter to the top  
4 grate. The filter is held in place both during filtration and filter removal by the  
5 filter's attachment to the grate.

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